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ABSTRACT

This policy brief was written to provide the North Carolina State Board of Education with a summary of research on enhancing effective instructional time. The impetus for extending school time appears to stem from two primary sources: international comparisons, and research on the relationship between time and learning. Research findings indicate that the key to improving achievement is to increase actual learning time. Increases in engaged time and actual learning time will occur only when teachers use appropriate instructional strategies with students who experience repeated successes in learning. Policies that increase the time that students spend in school should therefore be accompanied by strategies aimed at improving instruction and increasing actual learning time. The following recommendations are made for enhancing learning time: (1) decrease absenteeism; (2) increase the amount of time available for instruction; (3) place priorities on content areas; (4) minimize interruptions in instructional time; (5) enhance efficiency of instruction through better administrative management; (6) enhance efficiency of instruction through better instructional management; (7) devise and use strategies to increase student motivation for learning; and (8) use appropriate instructional strategies for individual student abilities and prior knowledge. One figure is included. Contains 26 references. (LMI)

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The purpose of the Policy Brief series is to provide the North Carolina State Board of Education with summaries of information related to educational policy initiatives that may affect educational policy and practice in North Carolina. Additional information about the topic described in this Policy Brief may be obtained by contacting the Center.

ENHANCING EFFECTIVE INSTRUCTIONAL TIME: A REVIEW OF RESEARCH

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One area on which policy makers and educational planners focus as they consider ways of improving education in the United States is time. In 1983, the Commission on Excellence in Education in A Nation at Risk recommended that, "...significantly more time be devoted to learning the New Basics. This will require more effective use of the existing school day, a longer school day, or a lengthened school year." (p. 29) The Commission recommended that states and local districts consider increasing the average school day from 6 to 7 hours, as well as increasing the average 180 day school year to between 200 and 220 days. More recently, The U.S. Congress created a nine-member National Commission on Time and Learning, whose task is to examine issues regarding the length of the school day and year, the extent and role of homework, how time is used for academic subjects, year-round

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professional opportunities for teachers, and the use of school facilities for extended learning programs (U.S.Congress, 1991).

The impetus for extending school time appears to emanate from two primary sources: (a) international comparisons, and (b) research on the relationship between time and learning. .

International Comparisons

In comparison with other industrialized nations, children in the United States attend school fewer days - 180 days compared to up to 230 days in Germany and 240 days in Japan (North Carolina Department of Public Education Staff, 1983; Walberg, 1988) and devote fewer hours per week to academic study (which includes time in school plus homework) - 61 hours per week for Japanese students compared to an average of 30 hours per week for American students (Taylor, 1991). Direct comparisons of this kind are problematic because of school population differences. Nevertheless, these differences undoubtedly contribute to the achievement deficit shown by American children when cross-nation comparisons are made.

Other factors related to the superior achievement of students in other countries are cultural. In a cross-cultural study, Asian students from Japan and Taiwan far surpassed their American counterparts in elementary mathematics. The major variables accounting for the difference were cited as a more rigorous curriculum, more studying, and greater parental encouragement (Stevenson, Lee, & Stigler, 1986; Stevenson, 1987). Values and attitudes seem to play a part. In the U.S. academic success is attributed more to innate ability, while in Asia it is seen more as a function of hard work.

Time-on-Task Research

Further impetus for extending the time students spend in school has come from theoretical development and empirical research on the relationship between time spent on instructional tasks and learning. As early as 1963, Carroll hypothesized that actual time spent in learning and the time a student needs to learn are important determinants in achievement. Many well known studies, conducted in the 1970's and 1980's, indicated that more instructional time enhances

learning (Bloom, 1974; Berlinger, 1978; Denham & Lieberman, 1980). John Goodlad, in A Place Called School, stated that, "It is apparent that simply the amount of time spent on a given subject is a factor in learning." (Goodlad, 1984, p. 96)

More recently, however, other researchers who analyzed the research on time and learning concluded that time devoted to school learning is only a modest predictor of school achievement (Karweit, 1983; Walberg, 1988). They argue that other factors such as ability and successful learning experiences contribute more to the outcomes produced than does time alone.

Researchers examining time and its relation to learning have looked at both the instructional time that is available to students in American public schools and the relationship of time to learning. These have most often been described in terms of: (a) allotted time, (b) scheduled instructional time, (c) engaged time in learning, and (d) actual learning time.

Allotted Time. The maximum time allotted for instruction and learning in public schools is prescribed in state laws covering the number of school days per year and the length of the school day. The actual time available for instruction, however, varies widely.

The allotted number of days per year for instruction is often reduced by acts of nature such as heat and snow or unanticipated events such as hurricanes. In unionized states, the school year is sometimes shortened by teacher strikes. Financial difficulties may interfere with keeping schools open the allotted number of days.

Absenteeism also reduces the number of days available for instruction by an estimated 7% per year -- to 157 of 180 available days (Phay, 1991). Not only does absenteeism reduce the time a student is exposed to instruction, it also results in loss of instructional time when teachers must reintegrate absent students into the classroom.

Scheduled Instructional Time. Even greater variation occurs between the scheduled length of a school day and the time spent in instruction. One study reported that in the typical six-hour school day for elementary schools, two of those hours were scheduled for lunch, recess, breaks and non-instructional activities. Of the remaining four hours, three were typically scheduled for traditional academic

activities such as reading, writing, mathematics, science and social studies while the remaining hour was used for instruction in subjects such as art, music, and physical education. (Rosenshine, 1980). Statistics on the "average" instructional day of the secondary school, looking only at the overall schedule, not at in-class activities, reveals that only 40% of the day is available to instruction (Gilman & Knoll, 1984).

Interruptions in the school day are often cited by teachers as frustrating reductions in scheduled instructional time. These include PA announcements, assemblies, elections, fund raising activities, fire drills, attendance taking and other clerical tasks, student departure and return from pull-out programs, transition activities between subjects and classroom changes, pupil class registration, and extra curricular activities. (Petracco, 1990; Colorado State Department of Education, 1983; Gilman & Knoll, 1984).

Within allotted instructional time there is still great variation in actual instructional time. In a study of an individual elementary school, the time allocated to mathematics instruction ranged from two hours and fifty minutes per week in one classroom to five hours and fifty-five minutes per week in another. Over a year's time this resulted in some students receiving over 100 more hours of instruction in mathematics than some of their schoolmates (Karweit and Slavin, 1981).

Some argue that the amount of time teachers spend on instruction in a given content area, particularly in elementary schools, depends on their expertise and interest in the content area. Another factor which influences the amount of time given to content areas is the priority given to specific subjects. In Illinois, for example, a study of public high schools found that almost twice as much instructional time was devoted to physical education and health as was devoted to science (Illinois State Board of Education, 1983).

Since 1983 a great deal of attention has been given to establishing curricular priorities. However, if allocation of central office staff is an indicator, the disparity among content areas still exists. In North Carolina, for example, over 75 percent of the school districts have central office staff responsible for health education and vocational education while less than 20 per cent have staff whose sole responsi lity is communication skills, mathematics, or science (Ferron, Maniloff, and Suarez, 1991).

Classroom instructional time is further reduced by activities such as distributing materials, and moving to groups, discipline, repeating unclear instructions for a task and other classroom management activities limit the time available to teach and learn. Wyne and Stuck (1982) suggest strategies such as beginning an ending lessons on time, reducing transition time between tasks, keeping directions clear and to a minimum, and monitoring students as they work to enhance the time available for instruction.

Engaged Time. During the period of direct classroom instruction, the amount of time a student pays attention or is engaged in the instruction affects learning. Studies have found that students pay attention to instructional activities about seventy to seventy-five percent of the time (Karweit, 1983). This figure varies across days (e.g., as holidays approach, etc.), across students, and across classrooms. Organizational and instructional factors that most influence the variation in time-on-task are teacher managerial competencies, the composition of the classroom, and mode of instruction (Fisher et. al., 1980).

Engagement in instruction by students is also affected by their ability and sex. Students with greater ability have higher percentages of engaged learning time. Girls, at least in elementary school, have been found to be on-task more than boys (Karweit, 1983).

It was in the study of engaged time that researchers concluded that time by itself was a weak contributor to achievement. Karweit's (1983) analysis of several studies of time and learning indicated that engaged time explained a very small portion of the achievement outcome. This led researchers to examine more carefully what was occurring during engaged time to produce achievement.

Actual Learning Time. Within the time that students are engaged in a task or attentive to it, there are still great variations in the time that learning actually occurs. Students may be engaged in the task but not have the prerequisite skills to learn it, they may already know the material being covered, or the type of instruction may not be conducive to learning for some or all of the students.

Actual learning time is only a portion of engaged time -- that portion of time when the student is experiencing a high rate of success in the learning process (Berlinger, 1978; Walberg, 1988). Instruction which fails to attend to individual

differences reduces the actual learning time for students for whom the instruction is ineffective and produces a cumulatively negative effect for below average students; the academically rich get richer, while the academically poor fall further behind. The relationship of the variety of kinds of time related to learning is illustrated in Figure 1.

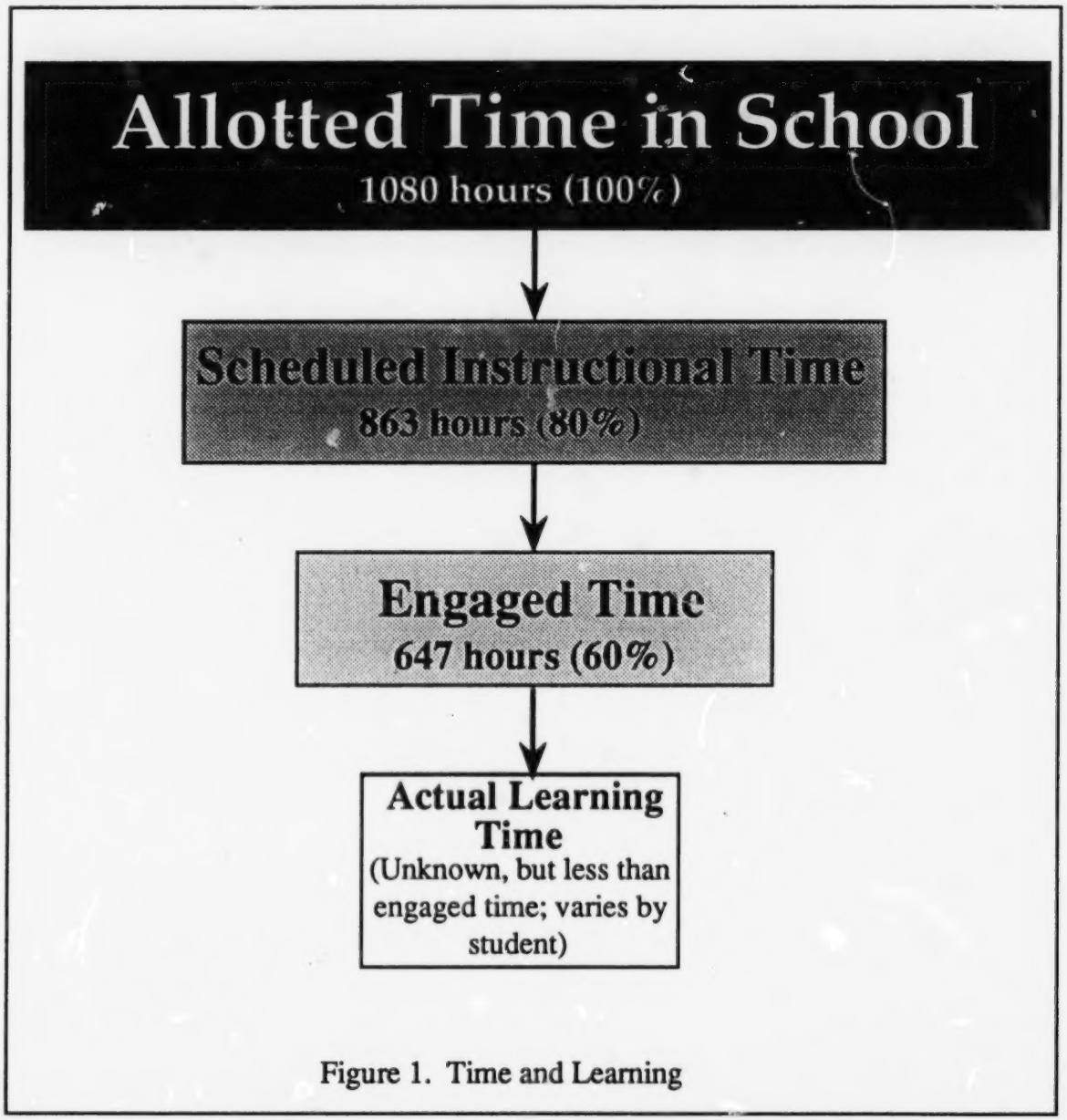

Figure 1. Time and Learning

Costs

When the benefit of increasing students' time in school is analyzed together with costs, some researchers have concluded that it may be too expensive in light of the results. (Levin, 1983; Odden, 1983). Odden (1983) estimates the cost to the nation of extending the school day to 8 hours or lengthening the school year from 180 days to 200 days at more than $20 billion annually. An estimate in Colorado for increasing the school day from 6 hours to 7 hours in 1983 was 7 percent of the current budget. An estimate for increasing the school year from 180 days to 200 days was 10 percent of the current budget (Colorado State Department, 1983). Staff in North Carolina estimated a cost of over $140 million per year to add one month of allotted time to the school year (North Carolina Department of Public Instruction Staff, 1983).

State Experiences

In spite of the rhetoric calling for increased time in schooling, there is little variation among states in the number of days in the school year (175 days to 185 days) or in the school day (4 hours to 6 hours for elementary school; 5 hours to 7 hours for high school) (Nelson, 1990). In 1985 there were seven states considering increasing substantially the number of days in the school year. However, experiments in states with lengthening the school year have not been well received by the public (Pipho, 1990).

Several states, including North Carolina, have studied the topic of allocated and learning time. The results of these analyses have been: (a) recommendations that educators first seek to maximize effective instruction and learning within the existing allotted and scheduled time frame before adding to the school year or day, and (b) cautions that extending the school day or the school year has many potentially troublesome consequences. Among these are cost, coping with extremes in weather (especially summer heat in non-air conditioned buildings), reducing out-of-school job opportunities for students, burnout for both teachers and students, and conflicts with traditional vacation periods for families (Colorado State Department of Education, 1983; Illinois State Board of Education, 1983, North Carolina Department of Public Education Staff, 1983).

SUMMARY AND RECOMMENDATIONS

From the results of research to date, it would appear that the key to improving achievement is to increase actual learning time. Actual learning time, however, is not a kind of time that is easily influenced by statewide or local district policies. Increases in engaged time and actual learning time occur in individual classrooms with students and teachers. Changes at this level may be enhanced by policies that provide adequate instructional time, but will only occur with teachers using appropriate instructional strategies with students who experience repeated successes in learning. Policies that increase the time that students spend in school should therefore, be accompanied by policies or strategies aimed at improving instruction and increasing actual learning time.

Recommendations for enhancing the opportunity to learn and actual learning suggested by the research include:

Allotted Time

1. Decrease absenteeism
2. Increase the amount of time available for instruction

Scheduled Instructional Time

3. Place priorities on content areas
4. Minimize interruptions in instructional time
5. Enhance efficiency of instruction through better administrative management

Engaged Time

6. Enhance efficiency of instruction through better instructional management
7. Devise and use strategies to increase student motivation for learning

Actual Learning Time

8. Use appropriate instructional strategies for individual student abilities and prior knowledge

Information contained in this Policy Brief was summarized from:

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